A CASE STUDY ON THE USE OF ATHLETIC PERFORMANCE STRATEGIES IN AN ELITE ATHLETE'S MANAGEMENT OF PANCREATIC CANCER

by

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The following individuals read and discussed the thesis submitted by student Brooke Elisabeth Harris, and they also evaluated her presentation and response to questions during the final oral examination. They found that the student passed the final oral examination, and that the thesis was satisfactory for a master's degree and ready for any final modifications that they explicitly required.

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DEDICATION

This thesis is dedicated to Michelle Bono, who graciously shared her experience as an elite athlete facing pancreatic cancer. Her willingness to disclose her story gives insight to athletic performance strategies that may be used during cancer treatment. It was her hope that by telling her story she could make a difference by helping others facing cancer. Michelle's bravery, humor, and kindness will not be forgotten.

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ABSTRACT

In 2007, 11.7 million people in the United States were living with a cancer diagnosis. Specifically, 12 in every 100,000 Americans are diagnosed with pancreatic cancer each year. The five year survival rate of pancreatic cancer in the United States is only 5.6% (National Cancer Institute, 2007). In addition to traditional pharmacological treatments, physical activity has been increasingly used to help individuals successfully cope with cancer. One area that has not been studied extensively is the use of sport psychology techniques to help athletes cope with cancer. It is possible that these techniques, learned by elite athletes during their careers, can be used during cancer treatment. This case study offers a detailed picture of an elite female track cyclist undergoing treatment for pancreatic cancer. Information was gathered during a semi-structured taped interview session and was analyzed using the triangulation process to determine if and how athletic performance strategies were incorporated during cancer treatment. The results of this qualitative research study indicate ten primary strategies were used by this athlete. This athlete's particular approach to cancer treatment seemed to parallel her approach to elite competition. These findings indicate a promising area for future research on effective sport psychology-related coping skills for cancer patients.

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CHAPTER ONE: INTRODUCTION

I first met Michelle Bono in January 2007 when I traveled to Kona, Hawaii to train for several weeks for upcoming World Cup cycling races. Though I did not know her, she had heard through a network of cyclists that I needed a place to stay while I trained. She opened her home to me as I prepared for my upcoming season. Michelle herself was an accomplished cyclist at that time and we enjoyed talking about racing during my visit. Though I was a road cyclist, and she was primarily a track cyclist, we had the same hunger for the sport and similar drive to succeed. Michelle had already been crowned a National Champion on the track and had many goals for the season ahead that she shared with me during our conversations.

Michelle appeared to be the picture of health during our initial meeting. She looked vibrant. Her eyes were bright. She was fit and strong. I was impressed by her impeccable diet of fresh sea food and Hawaiian fruits and vegetables. I remember thinking to myself that I needed to aspire to eat healthier like Michelle throughout my upcoming racing season. I would have never guessed that at that time, she had a tumor growing on her pancreas. I know she would not have believed it either. She was focused on preparing for her next cycling season. She was determined, energetic, and health-minded.

Michelle and I kept in touch throughout the beginning of my 2007 cycling season. Then, mysteriously, over the summer, I stopped getting responses to my emails and race reports. I assumed she was busy training and running her business, a small car

dealership on the Big Island of Hawaii. However, late in 2007, she contacted me and let me know that she had faced pancreatic cancer but had beaten it. She was exhilarated at her amazing victory over this deadly cancer and was immediately immersing herself back into cycling training.

Throughout 2008, she kept me posted as she trained for her comeback. Her emails seemed so determined and focused, just as she had been when I met her the year before. She updated me on her grueling training. It was apparent that she was rejoicing in having her health back. I viewed her training as a celebration of being able to train as an elite athlete again. I was in awe of her ability to come back so quickly after pancreatic cancer and win another national championship. I lost my second family member to pancreatic cancer in 2007, so the knowledge of the rapidly grim prognosis of this form of cancer was fresh in my mind. This is when I first thought of studying Michelle for my thesis.

As I began to prepare for my thesis during the following year, Michelle had a recurrence and returned to the MD Anderson Center in Houston for more treatment. After her first triumph over this disease, I was confident she could do it again. She went through chemotherapy for a second time in 2008. She was surprised that the cancer had returned. This was not the way she had envisioned her story going. But she faced this with courage and again got through the difficult treatments successfully. However, in the spring of 2009, she learned the pancreatic cancer had returned for a third time.

Cancer as a Life Changing Experience

Receiving a cancer diagnosis represents a life changing experience. Not only must the patient endure physiological stress imposed by the disease and by treatment

modalities, but the psychological stress is significant as well. Exercise training as an intervention to deal with the physiological stresses of cancer (e.g., fatigue) is beneficial. Both aerobically-based and anaerobically-based training programs can reduce fatigue sensations from cancer and increase physical capacities in patients undergoing chemotherapy (Jarden, Hovgaard, Boesen, & Adamsen, 2007; Milne, Wallman, Gordon, & Courneya, 2008; Quist et al., 2006; Spruit, Janssen, Willemsen, Hochstenberg, & Wouters, 2006). Patients have reported significant fatigue reduction with exercise training after cancer remission (Meeske et al., 2007).

The psychological damage from cancer may be as extensive as the physiological toll. Feelings of fear, anxiety, depression, and lack of control are frequently reported by cancer patients. Techniques to assist with the psychological components associated with the disease and treatment are useful in disease management. For example, the use of optimism is beneficial for combating anxiety and depression as well as in reducing fatigue and pain (Fournier, de Ridder, & Bensing, 2002; Kurtz, Kurtz, Given, & Given, 2008).

Psychological techniques generally associated with athletes have been explored for their use with cancer patients. Visualization strategies (e.g., see yourself as strong and healthy) are promising (McCullough, 2007). Additionally, the use of team dynamics in groups of patients may also have positive benefits, such as feeling more empowered and understood during the fight against the disease (Glover & Parry, 2009; McNeely et al., 2006). While psychological techniques used by athletes have been explored in cancer patients who were not necessarily athletes themselves, there is a

dearth of research that addresses how elite athletes who are afflicted with cancer manage the disease.

Little information has been presented on how physiological and psychological strategies used to prepare and compete in elite level athletic competition may be used to cope with cancer during the various stages of the disease. Midtgaard, Stelter, Roerth, and Adamsen (2007) did note that Lance Armstrong, a well-known professional cyclist and seven-time winner of the Tour de France, serves as an inspirational role model for many cancer patients. They also declared that Armstrong's story should call researchers to further examine the psychological effects of exercise and physical activity on patients with advanced cancer, as there is not much current information in this area.

Given the need to further explore how elite athletes may cope with the psychological and physiological stresses of cancer and the lack of information in this area, this case study provides a detailed description of one woman's experience with pancreatic cancer. Specifically, this case study examines how the participant's history as an elite athlete may have influenced her use of athletic performance strategies in self-management of pancreatic cancer.

Review of Literature

The purpose of this thesis was to explore, through a case study, whether the psychological techniques and strategies used by an elite athlete in training and competition are also used by the same athlete employed in self-management strategies during cancer treatment. No case studies or multiple subject investigations were found directly addressing this concept. Additionally, there is very little research specific to pancreatic cancer. However, several other related areas have been examined.

The components of the literature review will include: (a) the use of athletic terminology during a fight with cancer, (b) previous research that has examined changes in psychological and physiological health through the use of exercise during cancer treatment and recovery, and (c) the potential use of sport psychology training techniques in cancer treatment and recovery. The areas that have been explored include the presence of athletic terminology and sporting language in cancer treatment, the use of psychological strategies related to exercise program to assist patients in disease management, and the application of psychological strategies in sport (e.g., optimism, visualization, and team building) in non-athletic cancer patients.

Investigators have also studied the physiological benefits of exercise during cancer treatment. An area of study that has received significant attention is the impact of exercise training on treatment-induced fatigue in cancer patients. Specifically, research has attempted to determine if exercise can positively influence the physical and psychological symptoms incurred during disease treatment. Another notable area of research is the influence of exercise interventions on long-term survival rates.

Though the research topics of athletic terminology in cancer, and psychological and physiological benefits of exercise during cancer treatment and recovery are not precisely the focus of the current investigation, these areas offer insight into the relationships between athletic mentality, exercise, and cancer. Familiarity with these areas of research helped frame the interview questions asked of the case study participant, and it helped the investigator interpret the interview findings.

Athletic Terminology in Cancer Treatment

Athletic terminology and sporting language is present in cancer research and treatment today. This is an indication that exercise and sport have influenced the mentality used in the approach to disease treatment. Seale (2001) examined the predominance of athletic and militaristic language, sometimes referred to as *struggle language* in news accounts of cancer. Words such as "fight," "battle," "crusade," "victims," "victory," and "the war against cancer" are examples of such language used in sporting events and war. Cancer *treatment* is often referred to as "bouts" or "rounds," which are words commonly used in contact sports, and cancer *recovery* is often referred to as a "comeback" or "beating" cancer (Seale, 2001, p. 315). This choice of language in the context of cancer shows a presence and acceptance of an athletic mentality.

Another example of the use of athletic terminology is found in an account of a tennis star recovering from testicular cancer. The media stated that he was aiming to "reach a match point in recovery" (Seale, 2001, p. 310). Sporting language was also used in a newspaper article about a cyclist recovering from cancer, who was called a "Battling Biker" (Seale, 2001, p. 315). A review of breast cancer articles during Breast Cancer Awareness month showed widespread use of sporting and war metaphors, which also highlights the presence of an athletic mentality in the treatment of cancer (Seale, 2001).

Beyond the media, the prevalence of athletic terminology also occurs in cancer treatment settings. Lance Armstrong's memoir, *It's Not About The Bike,* is used frequently as a teaching tool in cancer treatment. In this book, Lance Armstrong's cancer experience and triumphant return to professional cycling and victory in the Tour

de France are chronicled. Student nurses found the chapters in Armstrong's book very effective for enhancing their interest in pharmacology. The fact that this popular book is now used worldwide in areas such as university-level nursing classes shows how extensively the relationship between athletics and cancer reaches (Mathibe, 2007).

Psychological Research

In addition to the use of athletic terminology in describing cancer treatment and recovery, several psychological strategies used in sports have been implicated in cancer management. One such strategy that has received attention is the role of optimism as a coping strategy. Optimism is described as an attitude associated with an expectation about the future that is subjectively evaluated as socially desirable. Optimism is often linked to good health and positive mood. Optimism is a term associated with a positive outlook towards life outcomes, as well as a positive view towards self, and feelings of self-mastery and self-efficacy (Peterson, 2000).

Fournier et al. (2002) examined how optimism helps people facing chronic diseases. Throughout the course of research, three beliefs have been associated with optimism: outcome expectancies (e.g., positive result of cancer treatment), efficacy expectancies (e.g., sense of control during cancer treatment), and unrealistic thinking (e.g., belief of an immediate cure). When outcome and efficacy expectancies stabilized, mental health improved. Optimistic beliefs were extremely effective when chronic disease patients could view their conditions as somewhat controllable. Possessing optimism while simultaneously living with disease helped patients improve quality of life. Interestingly, physical functioning was not influenced by optimistic beliefs or

coping strategies, but the perception of efficacy led to decreases in anxiety and depression.

Kurtz et al. (2008) found similar results to Fournier et al. (2002). Kurtz examined whether personality traits of cancer patients such as dispositional optimism and mastery can play a role in pain and fatigue management. Over a ten-week period, chemotherapy patients were interviewed as they participated in a nurse-assisted symptom control intervention. Fewer co-morbid conditions and lower pain levels were reported in patients who had higher levels of optimism and a stronger perception of mastery, even in individuals who were older in chronological age.

Midtgaard et al. (2007) analyzed patient diaries of cancer patients participating in an exercise intervention while in chemotherapy. Cancer patients participated in a six-week intervention that consisted of nine weekly hours spent in a group exercise intervention. Participants kept diaries during the exercise program. Half of the diary was a structured portion, which required participants to rate their experience numerically. The second half of the diary consisted of an unstructured, blank portion for participants to record thoughts and feelings related to the intervention. Analysis showed that exercise can reduce psychological distress in cancer patients. During the first week of the exercise intervention, participants already noted that they perceived their bodies differently. Feelings of increased autonomy and a change in personal narrative was documented in the first week as well. Researchers found that physical and psychological obstacles could be alleviated through exercise participation, and that patients could increase feelings of self-reliance. The findings in the article highlight the

possible benefits of adopting an athletic lifestyle, even during a taxing time such as chemotherapy (Midtgaard et al., 2007, p. 181).

Knutsen, Quist, Midtgaard, Rorth and Adamsen (2006) put cancer patients through maximal physical capacity testing before and after a physical activity program and reported qualitative findings. Using semi-structured interviews, the researchers found that the exercise program increased feelings of safety during maximal exercise testing. Before the intervention, patients did not feel as safe while straining their bodies during maximal exercise testing for aerobic capacity and muscular strength. This study was remarkable because it opened up the possibility for more rigorous testing and training during cancer treatment. Though this study examined the attitudes and reactions toward maximal exercise testing, it is notable that the exercise program included the mental training aspects of relaxation, massage, and body awareness.

When exploring sport psychology techniques present in cancer treatment, visualization should also be considered. Visualization is prominent in sport psychology, therefore, it is important to examine when investigating the athletic mentality during the cancer experience. Specifically, the innovative program led by Stephanie Simonton-Atchley at the Arkansas Cancer Research Center should be mentioned. At this time, there are no published peer-reviewed data on the program; however, it was stated that "the practice of visualizing the powers of health in the body has dramatically changed how some patients live with illness" (McCullough, 2007, p. 40).

The psychological impact of team dynamics has also been researched. This strategy involves the examination of the effects of athletics, specifically group exercise participation, on cancer patients. Team camaraderie may provide additional support for

a cancer patient—above and beyond exercise. Adamsen, Rasmussen, and Pedersen (2001) examined how a group exercise program impacted men with cancer. Close-knit relationships were formed and team dynamics were simulated. Increased well-being and bodily awareness were examined. The group exercise positively impacted their coping abilities and sense of well-being. Physical, psychological, and social areas of life were all positively affected. Future research is needed to examine the effects of group exercise on women as well as mixed-gendered groups. Research surrounding the simulation of a team atmosphere with doctors and other treatment providers has the potential to significantly enhance well-being in a number of groups.

Canadian researchers also examined team dynamics among cancer patients. In Toronto, Gilda's Club is "a non-institutional setting, where people living with cancer join together to build physical, social, and emotional support as a supplement to medical care" (Glover & Parry, 2009, p. 97). The club created a team atmosphere in a neutral setting. Gilda's Club members viewed the setting as a respite from stressors at home and at the hospital. They enjoyed meeting others who were facing cancer in their own lives, and thrived in the social environment. Exploring whether a team-like environment ignites the mentality associated with sporting events and athletics may provide benefits for cancer treatment providers as well as patients.

One of the most frequently researched cancer populations is women with breast cancer. Within this group, the psychological benefits of exercise and cancer during treatment or recovery from cancer have been explored. Researchers have acknowledged that exercise can possibly improve quality of life for breast cancer patients. In a meta-analysis, McNeely et al. (2006) found that exercise is an effective intervention for

cancer patients seeking to improve physical fitness and overall physical functioning as well as increase perceptions of quality of life. Exercise has also consistently reduced feelings of fatigue in cancer patients and survivors. Even in studies that did not reach statistical significance in this analysis, positive outcomes were noted. Researchers in this meta-analysis stated the need for future research, particularly in the areas of long-term benefits of exercise in cancer patients and possible adverse effects.

Knobf et al. (2006) examined the effect of an exercise intervention on quality of life in breast cancer survivors. In this intervention, subjects participated in 16-24 weeks of supervised aerobic and resistance training, with three training sessions per week. The length of the intervention depended on the cancer treatment regimen. Participants noted improved emotional functioning. Depression scores of participants decreased throughout the intervention, and tests indicating physical functioning increased. This study is significant because it links the psychological benefits of physical activity to the enhancement of physical condition in cancer survivors.

Physiological Research

In addition to examining psychological benefits of exercise in cancer patients, studies have examined physiological adaptations associated with exercise participation in cancer patients during and following cancer treatments. Even though these studies focused primarily on the physical adaptations, many studies examined the psychological components of well-being and quality of life.

An intervention of high-intensity resistance and cardiovascular training was conducted with chemotherapy patients (Quist et al., 2006, p. 356). Seventy patients in various stages of cancer participated in nine hours of weekly exercise programming for

a total of six weeks. The program included muscular strength exercises, aerobic exercise sessions, massage, relaxation exercises (a common practice found in sport psychology settings), and body awareness training. Physically, patients showed gains in muscular strength and aerobic conditioning. Participants also recorded increased body weight, which can be helpful after cancer treatments result in weight loss. Though participants did increase body weight, skinfold measurements decreased, indicating an increase in lean body mass. This shows that even patients in states of advanced disease may have the ability to improve physical condition through a comprehensive health and fitness program.

Milne et al. (2008) utilized a different training protocol with 60 breast cancer survivors: a combined resistance and aerobic exercise program. Two groups of exercise participants were examined. The first group began the exercise intervention immediately after completing cancer treatment. The second group waited 12 weeks post-treatment to begin the exercise intervention. Compared to the group that waited 12 weeks to start the intervention, the group that began exercising immediately following medical treatment reported positive attitudes toward the experience, and was more likely to adhere to the exercise program. Though this program was designed to improve strength and cardiovascular fitness, participation also resulted in increased feelings of autonomy. The exercise regimen met patients' psychological needs while also improving fitness levels. Importantly, this intervention also helped patients maintain exercise routines after treatment ended.

Jarden et al. (2007) conducted a mental and physical fitness program as an aspect of cancer care in patients undergoing allogenic stem cell transplantation. Twenty

patients were interviewed and tested throughout a 4-6 week intervention that included exercise on a stationary bicycle, muscular strength exercises, and flexibility training. Physical exercise training was supplemented with relaxation and cognitive training. Both qualitative (e.g., training journals) and quantitative (e.g., physical capacity test results) data were collected about aspects of the training program. Though qualitative data were collected, the study only reported on physical capacity tests. Participants showed significant improvements in areas of muscle strength while performing chest press, leg extension, and isometric right knee flexor exercises. Researchers expressed hope that these findings could help patients undergoing cancer treatments prevent loss of physical functioning through participation in similar exercise programs.

Spruit et al. (2006) examined the effects of exercise in lung cancer patients, an uncommonly studied group. Patients participated in an eight-week program that commenced approximately three months after undergoing intense treatment for lung cancer. Participants were sedentary for six months prior to the intervention. Exercises in the intervention consisted of pedaling on a cycling ergometer, walking, weight training on both upper and lower extremities, and gymnastics. Peak cycling tests and 6-minute walking tests were also performed. After the program, participants significantly increased workload during the peak cycling test as well as distance walked during the 6-minute walking test. Therefore, upon completing the intervention, patients saw gains in functional peak exercise capacity, even though they had significantly impaired lung function. This study highlights the benefits associated with a comprehensive exercise program to cancer patients.

Cancer-Related Fatigue

A research area gaining strength is the relationship between cancer and fatigue, and how exercise influences fatigue. In a meta-analysis, Stricker, Drake, Hoyer, and Mock (2004) stated that cancer-related fatigue is the most common and distressing side effect of cancer treatment, and that fatigue has a profound effect on daily living. They also stated that exercise is effective in combating cancer-related fatigue and that this belief is strongly supported in research. Effect sizes were moderate to large in the analysis, and consistently showed that exercise can reduce symptoms of cancer-related fatigue. Researchers believed patients should be encouraged to maintain physical activity during and following cancer treatments, because "exercise has been shown to be the most effective non-pharmacological intervention for cancer-related fatigue" (Stricker et al., 2004, p. 963). More research is needed to come up with more concrete evidence-based guidelines for exercise prescriptions for cancer patients.

Mitchell, Beck, Hood, Moore, and Tanner (2007) also reviewed interventions designed to lessen fatigue in cancer patients. Researchers confirmed that cancer-related fatigue had a strong effect on the severity of symptoms, quality of life, and physical and psychological well-being. They recommended several possible interventions that could reduce fatigue and improve quality of life, including progressive muscle relaxation, activity management, and massage. Though this article did not focus particularly on exercise as an intervention, it is important to note the focus on the link between fatigue and quality of life. This study reinforces the importance of discovering whether exercise can help patients reduce fatigue.

Mock et al. (2001) conducted a pilot study consisting of a home-based walking intervention with 52 female cancer patients and examined fatigue and quality of life before and after the intervention. At the end of either radiation or chemotherapy treatment, participants began a walking program that consisted of walking three or more days per week for a minimum of 90 minutes a week. Participants who followed the program reported decreased levels of fatigue, as well as improvements in emotional well-being.

In a follow-up study, Mock et al. (2005) expanded on previous research using a home-based walking program. They assigned sedentary breast cancer patients to an intervention group and a control group and studied the relationship between exercise and fatigue. For the exercise intervention, researchers again implemented a home-based walking program for 119 sedentary women. Participants were given a written prescription to walk five to six days per week at a moderate pace, increasing the duration of the walks as training progressed. The exercise group participated in the walking intervention while undergoing either six weeks of radiation therapy or three to six months of chemotherapy, depending on the necessary medical protocol for individual stage of cancer. Compared to women in the control group, women in the walking intervention group reported a significant reduction in fatigue. Positive changes in physical fitness, decreases in negative symptoms of cancer treatment, and increased physical functioning were documented. Mock et al. (2005) emphasized the mind-body link extensively in the analysis of the intervention, and acknowledged the connection between physical activity, fatigue, and patients' perceptions of quality of life.

Though many research studies have focused on quantitative and physiological aspects of exercise and cancer, Adamsen et al. (2004) conducted semi-structured qualitative interviews while investigating the reduction of fatigue through exercise in cancer patients undergoing chemotherapy. The fatigue reduction protocol was multi-dimensional, and included a physical exercise program, relaxation, massage, and body-awareness training. Though patients experienced exercise-induced fatigue throughout the intervention, they also perceived a "sense of increased physical strength, improvement in energy, and physical well-being" after participating in the program (Adamsen et al., 2004, p. 362). Patients observed a difference between chemotherapy-induced fatigue and exercise-induced fatigue. Interestingly, exercise participants viewed the fatigue from exercise in a positive way. This differentiation in perceptions about types of fatigue was a notable discovery.

Long-Term Effects of Exercise

In addition to examining the short-term effects of exercise on psychological and physiological health in cancer patients, it is important to consider the long-term effects of exercise and physical activity on the health and well-being of cancer survivors. Recent research has examined cancer survivors and how exercise can continue to impact physical and social well-being beyond the period of initial diagnosis and treatment. According to researchers, "the potential of exercise to improve the lives of cancer survivors is currently one of the most foremost areas of research in cancer control…Evidence of the benefits of exercise for cancer survivors has mounted steadily over the past few decades particularly in the areas of psychological and quality-of-life outcomes and cancer-related fatigue" (Ingram & Visovsky, 2007, p.275).

Meeske et al. (2007) followed breast cancer survivors for two to five years post diagnosis during the HEAL (Health, Eating, Activity, and Lifestyle) Study. It was common for cancer survivors to experience post-treatment fatigue for years. When physical activity was minimal after cancer treatment, patients reported an increased use of antidepressants and increased weight gain. Results from this study indicate that exercise and athletic activity can positively impact life several years following cancer diagnosis. These researchers also hypothesized that quality of life was lower in survivors with higher fatigue levels. This finding emphasizes the importance of exercise, not only during treatment, but long after treatment is completed as well (Meeske et al., 2007).

Researchers conducted a study that examined quality of life in cervical cancer patients. They interviewed 208 long-term survivors of the disease, at least six years past initial cancer diagnosis. Participants did not report worse health than the general population. This study was promising, as it showed a high level of adaptation back to everyday life after cancer. Though the study did not examine the emphasis of exercise in particular, it does show the importance of examining quality of life for survivors after cancer. Learning about attitudes and current health status of cancer survivors is an important area of research. It is also important to examine how exercise participation and athletic mentality may influence attitudes and health of long-term cancer survivors (Greenwald, McCorkle, & Fennie, 2008).

Conclusion

The relationship between cancer and exercise has been explored by examining the presence of sporting language in cancer treatment as well as the influence of exercise on physical and psychological well-being in cancer patients. However, this research has been limited to average individuals facing limited forms of cancer. Elite athletic experience and its influence on coping with cancer is an area that has not been adequately researched. Because elite athletes' success is due to more than superior physical fitness and natural physical abilities, it is believed psychological make-up and mental strategies in performance contribute in a large way to athletic success.

Further investigation into these psychological strengths and how they may enhance patient management of disease could be helpful to patients diagnosed with cancer. An exploration of psychological strategies that elite athletes employ could enhance information about the complex relationship of exercise and cancer. A case study approach lends itself to this type of investigation, and may offer helpful insight and coping strategies for cancer patients as they face treatment.

Methods

Subject

This case study focused on one participant, Michelle Bono. The participant was a 47-year-old elite female track cyclist with national podium finishes at both the elite and masters level. After three rounds of treatment for a form of pancreatic cancer, Michelle died February 23, 2010. This descriptive case study attempts to achieve a better understanding of how athletic mentality may influence personal experience with cancer, which may lead to new ideas and hypotheses in this area (Thomas, Nelson, & Silverman, 2005).

The Interview Process

I flew to Kona on May 28, 2009 to interview Michelle. The interview took place on May 30, 2009 at the Keauhou Beach Resort. Following the interview, I had the opportunity to watch Michelle practice with her paddling team in Keauhou Bay. It was an unforgettable experience. I watched her paddle on the ocean, living in the moment, despite the uncertainty of what was going to happen with her health and her life. Following paddling practice, I accompanied her to a counseling appointment. Michelle wanted to process the decision of going through chemotherapy a third time. I could hear the muffled voices of Michelle and the therapist linger in the thick Hawaiian air while I waited in the courtyard. As I looked around at the heavenly beauty of Kona, it was difficult to fathom that Michelle could be making such a hellish decision a few steps away from me. During my time on the island, Michelle and I also had the opportunity to have three dinners together. These interactions gave me an intuitive sense of her experience far beyond just her words in the interview.

Following my visit to Kona, Michelle and I stayed in touch until the time of her death on February 23, 2010. During our post-interview contact, I shared the interview transcript with her and she acknowledged that she received it. She indicated she was satisfied with it, and expressed that she did not want to respond or add to the interview over email. She told me her goal was to get well enough to make it to New Mexico and expand upon the interview in person.

Michelle almost made it to me. After becoming deathly ill with shingles and dropping to only 90 pounds in the fall of 2009, Michelle made the decision to end chemotherapy in hopes of increasing her quality of life. This was not an easy decision for her. However, even in this time of difficulty, Michelle set a new goal for herself. She decided to travel from Florida to California, driving across the United States, while visiting friends and family along the way. When she reached New Mexico, she wanted to leave I-10 and make her way to Silver City. She longed to see the Gila Cliff Dwellings, hoping they would have a healing and therapeutic effect.

Michelle got within 40 miles of my home, but was too sick to leave I-10 and visit. At this point, she was in substantial pain and had less than two weeks to live. Her traveling companion did not exit and instead drove her quickly to her goal destination of San Diego, where she passed away. Michelle made it to her finish line in California, just as she wanted. Michelle lost her battle with pancreatic cancer on February 23, 2010.

Procedures

The case study consisted of a semi-structured interview that was tape-recorded and subsequently transcribed. A set of questions was prepared to guide the interview and the semi-structured format allowed a conversational, open-ended format that is

common in many case studies (Thomas et. al, 2005). The interview questions are attached in the appendix.

This list of questions provided the overall framework for the conversation, but dialogue was allowed to flow naturally throughout the interview. The participant was provided with questions in advance of the interview so she would have ample time to think about her answers. The principal investigator (PI) took notes and recorded observations during and immediately after the interview. The PI also kept a personal record of self-reflection concerning the research and research process while conducting the study.

Analysis

The taped interview was reviewed and data were transcribed into a written format. The transcribed data were carefully read. Themes and constructs were generated to describe and interpret how the participant used her athletic background to cope with her cancer diagnosis and treatment. To enhance the quality of the findings, data were triangulated. Triangulation is a process that includes multiple methods of data analysis, at different times and locations by different committee members, with the goal of producing a more valid, reliable, and accurate description of reality during the interview (Golafshani, 2003). The following steps were used to triangulate the data in this study. First a copy of the written transcript was given to the participant so that she could read and correct anything she felt did not represent her true feelings or thoughts. Second, all members of the committee read the transcripts, and thoroughly discussed the constructs identified by the author of this thesis. Lastly, the thesis committee, consisting of experts in this area, examined the data and provided feedback on the analysis.

Purpose

The purpose of this case study was to gain insight and understanding about the process of coping with pancreatic cancer by describing an elite athlete's experience with cancer. The use of athletic performance strategies during patient management of cancer were examined and reported. A detailed picture of the phenomenon of a successful national-level female cyclist facing cancer is presented so that future research may examine the influence of athletic background on cancer treatment outcomes.

CHAPTER TWO: RESULTS

The following description of Michelle Bono's experience is based on a 1.25 hour interview conducted on May 30, 2009 in Kona, Hawaii. In our interview (see appendix for interview questions), Michelle talked about her athletic accomplishments and her experiences with pancreatic cancer.

Michelle succeeded athletically in both natural bodybuilding and track cycling. She finished 3rd in Olympic Trials on the track, and was a multi-time National Champion as well. She won Nationals before and after her first bout with pancreatic cancer. She viewed these victories as her "biggest athletic accomplishments."

Michelle focused on her physical activity from college age and on. Michelle became interested in physical activity as a college student at University of Florida, after she noticed she had gained some weight. She thought, "I don't think I'm supposed to look like this" as she looked at her body. Since she was unhappy with her weight, she began to exercise. She first ran recreationally and competed in a few fun runs. She was pleased as she noticed that "my body changed shape."

Michelle felt that being able to "transform" her body physically was a "big accomplishment." Because of the appeal of being able to morph her body into fitness, she ventured into strength training and body building, before finding her passion in track (cycle) racing. Michelle did not go in depth about her youth activity levels during the interview.

Michelle had very good general health up until she was diagnosed with cancer and “there was no indication” that she would face such a serious disease. Michelle emphasized that she “didn’t smoke” and “didn’t drink” and lived a healthy, clean lifestyle. Her body was that of a healthy, thriving elite athlete. Also, she had very little family history of cancer. A distant relative had lymphoma, and there was one incident of ovarian cancer in her family, but nothing in her immediate family. She had fibroid tumors in her uterus at one point, but stayed on top of things and had regular check ups. Michelle ate a healthy diet and was physically active. She wondered if she perhaps ate too much sugar as an athlete, but could not pinpoint anything health-wise or nutrition-wise that would have played a part in the development of cancer. She declared that “it was something in my DNA that came up at this time.” After developing cancer, she suffered from anemia. After the interview, during her third chemo treatment, she became very ill with shingles. She believed chemo weakened her immune system.

Michelle stated that she began having “indications probably a year and a half before” she was diagnosed with cancer. The symptom that caused her to go in for an evaluation was severe stomach pain. She thought it was due to food poisoning, but it did not go away. She said that “being an athlete and understanding pain” caused her to believe she might have eaten something wrong, especially since she was still successfully racing and training at the time.

She had also noticed a change in her body odors for a period of time before the abdominal pain. Since she, as an athlete, was so in tune with her body, could tell something was off with her body chemistry. She also experienced abdominal bloating. However, no problems were discovered until she was tested after her severe stomach

pain. She could not have imagined something so serious could be causing these changes.

Michelle's initial reaction was frustration at the doctors' lack of ability to figure out what was wrong with her. Once she was finally diagnosed, she had mixed emotions. On one hand, she described not being in a big hurry to get treatment because she was certain she was not going to die from cancer. When people would tell her that her chances of survival were slim, she would say, "Whatever, not my story." In this sense, she viewed it nonchalantly, thinking she would go and get the cancer cut out, and resume normal life.

On the other hand, she also was aware of the gravity of pancreatic cancer, and initially wanted to walk out of the hospital after being diagnosed because she figured she did not have much time left. She was aware that the doctors' discovery of this type of cancer meant "you're not even staged anymore. You're heading…to the pine box."

A cycling friend who was a doctor ignited a sense of urgency in her to get treatment. He suggested she fly to the MD Anderson Clinic in Houston, Texas for treatment. "'I'm gonna get you in in two weeks. You have to go. You have to get out of Hawaii and this is critical,'" Michelle recalled him say.

Despite her mixed emotions, Michelle's trait of determination was present during her diagnosis and initial trip to Houston for treatment. "The odds were so stacked against me, and I do well like that," Michelle declared. She went to Houston with the strong belief that she would not die from cancer. This was true of her first encounter with pancreatic cancer.

Michelle relied on a variety of coping strategies, including the support of friends, visualization, extreme mental focus, and attainment of self-efficacy during her treatment. Michelle had an extensive support system of friends in Hawaii and on the mainland. Her business partner flew to Houston with her for her initial treatment. These friendships helped her cope with her cancer diagnosis and treatment.

Michelle relied on visualization strategies during treatment. By choosing to view chemotherapy as a race, she tapped in to her sprinting mentality. She asked doctors how fast anyone had gotten through the treatment. She made it her goal to win at chemo. She proudly told me that "I won the three months," meaning she made it through the treatment faster than any patient before. She believed she employed this visualization strategy due to "being a sprinter."

Michelle also employed visualization by viewing chemotherapy as "Sigourney Weaver" in her body killing the alien cancer cells. This is another example of how she utilized the athletic performance strategy of visualization while treating her cancer.

Michelle also used the performance strategy of repeating a mantra. She would visualize her tumor shrinking. As she would walk, she would think "shrink, shrink, shrink" with each step.

Michelle used mental focus similar to when she was competing as an elite cyclist. She employed race-like nutritional preparation during treatment. She scrutinized her diet and hydration levels, just as she had as a diligent elite athlete. She knew she needed to take care of this aspect while she was racing against cancer.

Another way that Michelle coped was having a high level of self-efficacy. Michelle approached cancer with confidence and optimism since she truly believed in

herself and her capabilities. She knew she could beat it. She described it as a race that she had to win, because if she lost, she would die. Since she used the analogy of racing, she believed that "the same strategies were absolutely employed."

Michelle acknowledged that her first time through cancer was "naivety." She viewed it as a competition that she could win. She attributed being a sprinter to her mentality of wanting to get through the treatments faster than any patients in the past.

During her second course of treatment, she used the technique of living "life more in the moment." She surrendered to what was happening and did not approach it with as much aggression. There was an element of acceptance the second time that was not present during her first round. She also was less athletically focused and worked to become more balanced and spiritually integrated. Her perspective on other things became deeper. She believed her later rounds allowed her to become a more "complete" person, rather than just an athlete.

During her first chemotherapy experience, Michelle exercised as much as possible, and came back to win a national championship on the track in cycling within a few months after treatment. This was a remarkable achievement. Shortly after being physically weak and violently ill from intense chemotherapy, Michelle decided she would resume training. This decision was congruent with her determined and competitive spirit that had gotten her through chemotherapy with doctors hoping she would be their first cure.

Michelle returned to Hawaii and quickly resumed her training regimen. Even though she was weak at first, she would not give up. With the help and guidance of legendary U.S. National Team track cycling coach Eddie Borysewicz, famously known

as “Eddie B,” Michelle began to get her fitness back. Within a few months of cancer treatment, she competed at the U.S. National Championships. Though she was still lacking some power, Coach Eddie B. worked with her to strategize instead of relying on pure power alone, and she was crowned a National Champion.

When her cancer came back after such an amazingly successful first round, Michelle adopted a different mindset. She viewed her second time as “surrender, like in a war.” In her subsequent rounds, it was harder for her to stay active, as the chemotherapy side effects were “horrendous,” but she at least walked when possible. At times, it was just up and down the hospital hall, but she did it to the best of her ability, which is consistent with her character.

After our interview, I watched Michelle paddle with the Keauhou Paddle Club in Hawaii. Though she was experiencing “dull pain” and knew the cancer had returned for a third time at this point, she still wanted to stay active and exercise. I watched her paddle in to the sunset with her teammates and could see that continuing to exercise brought normalcy to her life. It helped relieve her stress and made her body feel better.

After the workout, she even expressed competitive frustration that she might not make the line-up for the upcoming weekend race. She explained that she could not give up wanting to be strong. Michelle did proudly compete in the upcoming paddling race, despite the cancer in her lymph nodes. Exercise in itself was a coping strategy for Michelle during at this stage of her cancer.

Michelle had chemotherapy a total of three times. Each bout consisted of several rounds. At the time of our interview, she had undergone two rounds. After our meeting, she decided to return to Houston and try one more time to fight the cancer. During my

visit, she had agonized whether to go through chemotherapy again. Michelle described cancer treatment as “horrendous suffering.” She said that treatment was the “hardest thing I’ve ever been through.” She experienced several side effects such as nausea, weakness, and hair loss. She experienced significant weight and strength loss each time. During her last round of chemo, her immune system was compromised, and she became seriously ill with shingles. However, she did not allow this pain to defeat her. Instead, she became intently focused.

Michelle became robotic during treatment: focusing on a “small tile” of information, as she described it. She asked herself, “Did I eat, did I drink, did I not do this, did I not do that?” just as she did while training as an elite athlete. She drew on this robot-like mentality from her experience as an elite athlete. As a top level performer, she often had to focus and view her body as a trained machine. Her approach to cancer treatment was congruent to this mentality.

Michelle also had a strong network of friends to help her through treatment and provide her with emotional support. Michelle also coped with help from the Aishel House, a Jewish charity that took her in, housed her, fed her, and gave her emotional support and spiritual guidance during treatments.

Michelle tried to take as little medication as possible during treatment. She did not like to take laxatives or other things to help with digestion. She tried not to rely on painkillers. She did become anemic at one point and was given EPO (erythropoietin), which did help her strength return on a rapid level. Michelle laughed at the irony of taking EPO during treatment, as it is an illegal substance in cycling competitions.

Michelle asserted that being an athlete "absolutely" affected her attitude towards cancer. She tapped into her "mental steadfastness" that helped her become a national champion. She drew from her experience as an elite athlete, stating, "You've dealt with loss. You know what that is. And you know how to win." Because her life was at stake, she believed, "in this case, there could not be losing. It had to be winning."

Michelle believed that her experience as an elite athlete helped her with pain tolerance while suffering through chemotherapy. She used visualization and tapped into the same drive and focus she used as a cyclist. She used the analogy of climbing up a hill on a bike: because she had been an athlete, she was able to pace herself, and know that if she could tough it out to the top, she would get some relief.

Michelle employed optimism during her experience with cancer, something she had relied on as an athlete. She believed that "keeping a positive attitude" was crucial. She believed that she would have died quickly if she had a negative attitude and had listened to the morbid statistics.

She also indicated that an internal locus of control was important while dealing with cancer. She stated that "we have to be our own advocates…we have to understand our bodies…you're in charge of yourself and it's your body." She also believed that "it takes a certain…mental steadfastness to be a National Champion" and that her strong mentality was an asset during her experience with cancer.

Michelle believed that her experience as an athlete gave her the mental and physical strength to survive the treatments. In fact, she repeatedly described cancer as another race. Many other people at the hospital did not fare as well. She believed that her mental toughness and fortitude allowed her to triumph when odds were against her.

She did at one point mention that maybe she pushed it too hard after her first cancer experience to compete again before her immune system was ready. At the time of our interview, she was still actively paddling, but was making more of an effort to be gentle with herself and listen to when her body needed rest. Her physical activity now was "about joy."

After our interview, I asked Michelle if she was encouraged to exercise during chemotherapy. She shared with me that when she returned for her second rounds of chemotherapy, the staff at MD Anderson encouraged her to be as active as she was during her first treatments when the cancer returned and she had to undergo chemotherapy again. They were in awe of her during her first treatments, and would watch her walking and strength training. They would send residents and interns in to watch her, since she was such an anomaly. They encouraged her to do it again the second time around, but it was much harder to do that time, as her side effects were worse.

Michelle believed in the importance of physical activity until the very end of her life. Even when her cancer came back a third time, she still exercised and even competed in paddling races in Hawaii. Michelle's athletic performance strategies of visualization, use of mantras, attention to nutrition and hydration, strong self-efficacy ratings, a high pain tolerance, optimistic thinking, an internal locus of control, awareness of body signals, and overall mental toughness all played a role in her cancer treatment. Also, valuing exercise as an outlet and a coping mechanism in itself also helped Michelle stay as active as possible during her experience with cancer.

CHAPTER THREE: DISCUSSION

Several themes emerged during my interview with Michelle. Precisely, ten primary themes were identified. Three of these themes were expected. Five other athletic performance strategies were also acknowledged throughout the study. Two additional and surprising themes emerged throughout the interview and triangulation process. Specifically, it was confirmed that she consistently used the same strategies as a cancer patient that she had used as an elite cyclist.

Based on my own experiences as an elite cyclist, I expected that in our interview she would talk about having heightened awareness of her body and its cues. I also anticipated that she would mention that she had a gift for pain tolerance, and perhaps that she utilized visualization. She did indicate that she utilized these qualities during cancer treatment. However, she relied on many other athletic performance strategies that that I did not think about beforehand. Teamwork, the specific mindset of beating the odds, developing the personal traits of self-efficacy, optimism, and internal locus of control were other athletic performance strategies that Michelle used. Lastly, the depth of Michelle's mental fortitude and the comforting effects of physical activity were other compelling themes that I was not previously aware would emerge so distinctly.

Heightened Body Awareness

The strategies I had predicted beforehand of attunement with one's body, pain tolerance, and visualization were utilized by Michelle during her experience with pancreatic cancer. Michelle described being highly aware of her body's messages throughout her cancer journey. Before she was diagnosed, she was aware of changes in her body that did not feel right. Though doctors could not detect anything wrong at the time, she could sense in her body that something was off. This showed the presence of her heightened awareness. Also, throughout her cancer treatment, she was vigilant about her body's signals and needs. She minimized painkiller ingestion so she could accurately read her body. The uncanny ability of athletes to attune to their body's signals and how this could affect response to chemotherapy is something that has not been examined. Michelle's vivid description of robotically reading and responding to her body's cues offers an intriguing area to explore in the relationship between cancer, exercise, and athletic experience.

High Pain Tolerance

She also described her ability to tolerate pain and attributed it to her athletic experience. She used the analogy of climbing a hill on her bike. Although the pain was great, she knew that she could tough it out until she could experience relief at the top. Michelle believed this to be true of cancer as well: she believed if she endured the treatments that she would have the desired outcome. She understood that the suffering was temporary and a means to an end. This concept of pain tolerance due to athletic experience is an area that has not yet been explored in research. Michelle's insight presents an area for further exploration.

Visualization

Michelle's use of visualization during her cancer experience was expected and enriches the current body of research in this area (McCullough, 2007). Michelle used imagery of the chemotherapy in the form of a female warrior, Sigourney Weaver, and pictured her slaying the alien cancer cells in her body. She also imagined her pancreatic tumor shrinking. She paired this image with the mantra of "shrink, shrink, shrink."

Teamwork

Several other strategies were revealed during the interview. First was her utilization of friends and the Aishel House for support. Similar to the unity and support she felt while training with Eddie B and his team of athletes as well as the athletic community in Kona, she relied on a team of friends to help her throughout her cancer journey. Since track sprinting is more of an individual sport, I had not expected to find this. However, even in individual sports, there is a need for some sort of team support. Michelle definitely thrived off this support as an athlete and cancer patient.

This phenomenon of finding strength from a team-like atmosphere supports current literature in this area, such as the documented positive impact of Gilda's Club, which serves as a meeting place for cancer patients (Glover & Parry, 2009) and increased well-being of members of an exercise group comprised of male cancer patients (Adamsen et al., 2001).

Beating the Odds

A highly powerful theme of the desire to beat the odds emerged during the interview. Michelle was proud while discussing her accomplishments, especially the fact that she beat the odds of not having a track (i.e., a velodrome) to train on in Hawaii.

She was also proud of being over the age of 40 when she had her successful track career. Michelle thrived from beating odds that were against her in athletics. The same mindset was apparent during her battle with cancer. Just as she had enjoyed defying the odds to her fellow competitors and authoritative coaches, she loved proving wrong the doctors who had sentenced her to death. She described the same elated feelings of victory after shrinking her tumor and finishing treatment in record time. She even referred to this triumph over her first bout with cancer as training for an "A" event.

Michelle's aggressive and confident approach to cancer was congruent with a sprinter's mentality in the sport of cycling. During my own experience as a professional cyclist, my teammates who were sprinters were often straight-forward, and confident, with colorful personalities. To race a bike in a pack of other cyclists, bumping into each other during the pursuit to the finish line at 50 kilometers an hour, where every pedal stroke is a chance for a spectacular crash, takes a level of bravery and boldness that is not required of other types of cyclists. This desire for speed and victory is an innate quality and often parallels one's personality. Michelle's own claims that she had to approach cancer as a competition because she was a sprinter is an indication that her sprinting mentality was a part of who she was, in athletic competition and in battling cancer.

Because of her fearless nature, Michelle was familiar with beating the odds. She had overcome equipment and logistical deficits to become a top track sprinter in the United States. Most athletes enjoy hearing about stories of an underdog, someone who was counted out, but then had the will to triumph. This was Michelle's story in track cycling. Her diagnosis with deadly pancreatic cancer was another situation in which she

was a doubted underdog. Since she had beaten odds before, she was confident she could do it in this arena as well, especially since both athletics and cancer would require her to train her body to win. This phenomenon that Michelle described adds to the current research on the relationship between athletic performance and cancer and provides an intriguing aspect for further investigation.

Specific Personality Traits

I realized that some of her innate traits were helping her in cancer as they had in cycling: self-efficacy, optimism, and an internal sense of control. Fournier et al. (2002) indicated that personality traits such as optimism are advantageous during cancer treatments. Additionally, Kurtz et al. (2008) found that high levels of self-efficacy and mastery were assets for cancer patients. As found in this research, these traits helped Michelle to have the confidence to face the grim diagnosis of pancreatic cancer, just as she had been determined to be a National Champion in her forties without a track to train on. The belief in herself and her ability to succeed did not waver.

Mental Fortitude

I did not expect the intensity of mental strength that Michelle displayed during her experience with cancer. She got in a zone, just as one would in competition. Michelle described it as being a "robot" where she only focused on what was right in front of her and what needed to be done to get through it in that moment. She focused on fueling her body just as she had during competitions. This strong ability to keep a present focus and to listen for messages from her body was remarkable. However, this focus was ingrained in her after years of training as a serious athlete. She believed that

it would help her though cancer as well. This detailed picture of such extreme mental fortitude is one that enhances current literature on the link between cancer and sport.

Exercise as a Coping Mechanism

Lastly, I learned that physical activity itself was a coping mechanism for Michelle. It was a way of life for her. Staying as active as possible helped her both mentally and physically. The fact that she won a National Championship just a few months after her first bout with cancer, and was still paddling during her third bout, showed me that activity was a way of life for Michelle. It was "about joy" to her. The findings of Knobf et al. (2006) support this notion that exercise can enhance the emotional well-being of cancer patients.

I witnessed a strong connectedness to her body when I watched her row on the Pacific Ocean following our interview. Michelle was facing cancer for the third time, and this time it came back "five times as fast." She knew that the likelihood of having her cancer journey continue to resemble her triumphant cycling journey was nearly impossible. Even so, she celebrated the use of her body. She paddled with her team, working hard and was smiling as she put in the effort. I watched her from the shore, amazed at her perseverance. Even though she was in some ways losing the race against cancer, she was choosing to win in spite of this. She continued to live, to appreciate her body, and to take part in life.

Athletic Identity

As Michelle journeyed through cancer, her identity as an athlete had to evolve. It was strongest during her first round. She was still competing at that time, so she was relying on athletic mentality daily in her life. She viewed herself primarily as a

champion cyclist at that time. During her second round, Michelle opened herself to a more balanced identity and did not cling to her athletic identity as tightly. There were certain traits and practices that were a part of her, but she integrated other practices as well.

She was somewhat less confident during the second round, since she had been so sure previously that the cancer would not come back. Though she still employed athletic performance strategies as she had during the first round, she worked on staying more present. She also took on a more peaceful attitude and accepted what was happening, rather than only focusing on winning. Michelle also realized that living as an athlete had meant she was one-dimensional. She had been hyper-focused on her physical body. After experiencing a betrayal by her body and getting cancer again, Michelle began to look at her spiritual and emotional components to her life. She worked on developing many dimensions of herself, instead of only being a body. Perhaps realizing that her body may not survive inspired her to transcend it and become more than just a physical being.

When I interviewed Michelle, she was deciding whether to undergo a third chemotherapy treatment or just to live her life that was left. She was in the process of accepting that she was dying. Some of her last words in the interview were, “Even in dying, I guess it’s the way you handle dying. You can handle it and cry your way through it, and die. Or you can embrace the fact you did everything you needed to do in this lifetime.”

Michelle researched alternative treatments during this time of contemplation. I even accompanied her to meet with a therapist who used both Eastern and Western

approaches during my visit. Even though Michelle was in some ways accepting that she may die, it was also a struggle for her because she still had the desire to live. She still had a bold sprinter's personality. She still wanted the story to end like she had originally thought it would during the first round.

Conclusion

When I left the island, I believed Michelle would not choose to go through chemotherapy again. I could tell that was the path she wanted to take, but the competitive part of her identity was having a hard time accepting defeat; as such, Michelle decided to try chemotherapy one more time. She had to try again, so she could let go of life knowing she did all she could to win against cancer. Her inner athlete could not let her just walk away without giving it all she had.

Michelle suffered through her third round. She had severe shingles and turned into a skeleton. Yet she kept her sense of humor and her bold spirit. Cancer could not take that away from her. She decided to stop treatments after she had shingles, and decided she would like to take a cross-country road trip, visiting people she cared about as she drove from Florida to California.

Michelle passed away on February 23, 2010. She had lived with pancreatic cancer for almost two years after her diagnosis, which is remarkable. Michelle died with friends at her side. She made it to her designated finish line in California.

Michelle made it clear that the athletic performance strategies she employed made a positive impact on her cancer experience. Her willingness to share her story and her coping strategies enhances the current body of research regarding cancer and physical activity. Specifically, she enhanced the information available on elite athletes

and their unique experiences with cancer, as this area has been limited. As Midtgaard et al. (2007) asserted, more research should be conducted to determine which of these strategies are the most therapeutic in nature, and if they could be helpful for all cancer patients, not just athletes like Michelle. More research should also be conducted to examine benefit of continuing physical activity through cancer treatments. Though some research has shown that it is beneficial, more attention needs to be given to this area and patients need to be informed about it. If research continues, Michelle will continue to conquer by adding insight to the relationship between athletics and cancer.

Based on my interview with Michelle, there is no doubt that the athletic performance strategies influenced her approach to fighting cancer. Despite the fact she died from cancer, she still won. She lived her journey with cancer in the best way she could. Michelle gave it her best effort. Her spirit stayed strong. She even managed to grow and develop new aspects of herself during the disease. She faced cancer with the courage of a sprinter the whole way through.

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APPENDIX

Interview Questions

Interview Questions

1. What are your athletic accomplishments?

2. Please describe your overall lifelong athletic background and activity level during each decade of life.

3. What was your general health history like up until your cancer diagnosis? What has been your general health been like since you have been undergoing cancer treatment?

4. When and how did you discover you had cancer? Did you have any specific symptoms? If so, what were they?

5. What was your initial reaction?

6. What were your coping strategies?

7. Did your coping strategies and approach to your illness change throughout your course of treatment?

8. Describe your cancer treatment. What has it been like? What were the most difficult moments related to your treatment? What, of any, were the best things about treatment?

9. How did you cope with the side effects of cancer treatment?

10. Did your athletic background affect how you dealt with cancer? If so, how?

11. Do you believe your experience with mental and physical athletic performance strategies influence your experience with cancer? If so, how?

12. In what ways do you think your experience as an elite athlete helped or hurt you during this experience?